APPENDIX 4-A

STORAGE OF MANGANESE ORE
(Natural Battery Grade)

1. *Description*

a. Battery grade manganese ore, frequently referred to as manganese dioxide, is a black material in the form of small lumps and fines. It may be received for storage in any of the following two grades:

(1) Natural Grade A

(2) Natural Grade B

b. This type of manganese differs from the metallurgical grade in that it has a higher manganese-dioxide content and lower impurities. It is an important constituent of dry cell batteries. When acquired, battery grade manganese ore shall meet Purchase Specification P-29-R (Current Edition).

2. *Packaging*

a. Natural Grades A and B will be shipped in bulk. Due to the fineness of the material, it is susceptible to wind losses in transit. Accordingly, the DNSC-OL will issue advance instructions for the protection of shipments when necessary.

3. *Marking*

a. Two metal embossed pile signs with the pile number, material name, country of origin and major elements as specified by the DNSC-OL shall be placed at each end of the pile.

4. *Storage*

a. Natural Grades A and B are to be stored in the open on an improved surface equivalent to Type C, as described in Chapter 4 of this Manual. Material will be segregated into piles by country of origin and grade, or in the case of domestic material, by grade and producer. To prevent losses by action or wind, or rain, piles of fines shall be covered according to specifications provided by the DNSC-OL.

5. *Precautions To Be Taken*

a. *Health*. Dust should be minimized during receipt and/or outloading this material.

6. *Average Storage Factor*

a. *Volume*.

(1) *Bulk*. 12 cubic feet per short ton.

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b. *National Stockpile Average Square Foot Occupancy.*

(1) *Open Storage*. 2.1 gross square feet per short ton.

FOR ADDITIONAL INFORMATION ON THIS COMMODITY REFER TO THE MATERIAL SAFETY DATA SHEET OR THE MOST RECENT PURCHASE SPECIFICATION.